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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,750

09/18/2003

Brian Kilmartin

2003P07541 US01

4128

7590

02/24/2005

Elsa Keller
Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

ELLINGTON, ALANDRA

ART UNIT

PAPER NUMBER

2855

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,750

Applicant(s)

KILMARTIN ET AL.

Examiner

Alandra Ellington

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 16, 18-21, 30-41, 43, 44, 46 and 47 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 6, 11-30, 37, 44 and 45 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

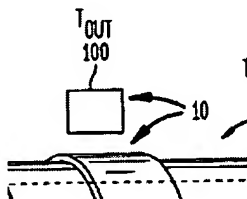
Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: *Tccw*'. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because there are two arrows pointing at two different elements in regards to reference character 10, which makes it unclear as to which is being taught as the torque sensor ({Fig. 1}).



3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

Art Unit: 2855

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:
 - a. Replace "S nsor" with – Sensor – in the title (page 1, line 1).
 - b. Replace "inner torque bearing member 20" with – outer torque bearing member 20 – (page 5, line 14).
 - c. Replace "outer torque bearing member 30" with – inner torque bearing member 30 – (page 5, line 15).
 - d. Replace "outer torque bearing member 20" with – inner torque bearing member 20 – (page 7, lines 1-2).

Appropriate correction is required.

Claim Objections

5. Claims 3,4,6,11-30,33,37,44 and 45 are objected to because of the following informalities:

- a. With respect to Claims 3 and 18, there is insufficient antecedent basis for the limitation "the *outer torque bearing member*" as recited in the claims.
- b. With respect to Claims 6, 29 and 33, there is insufficient antecedent basis for the limitation "the *response detector*" as recited in the claims.
- c. With respect to Claim 13 and 44, there is insufficient antecedent basis for the limitation "the *inner torque bearing member*" as recited in the claims.
- d. With respect to Claim 14 and 45, there is insufficient antecedent basis for the limitation "the *outer torque bearing member*" and "the *response detector*" as recited in the claims.
- e. With respect to Claims 11-16, insert a "." after the claim numbers.
- f. With respect to Claim 37, insert a "." at the end of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4,7-13,15,31-34,37-42,44 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Kilmartin et al (5,889,215) (hereinafter Kilmartin).

- a. With respect to Claim 1, Kilmartin discloses an apparatus for single ended stress measurement, comprising: nested structural members 10,14 such that a

load on either causes a stress on the other (col. 4 line 67, col. 5 lines 1-5); and a sense element 24 coupled to at least one of the structural members 14 for generating a signal indicative the stress applied to the structural member 14 that is coupled thereto (col. 5 lines 47-51).

b. With respect to Claim 2, Kilmartin discloses the apparatus of claim 1 wherein the nested structural members comprises an inner torque bearing member 10 inserted within an outer torque bearing member 14 (col. 3 lines 7-10).

c. With respect to Claim 3, Kilmartin discloses the apparatus of claim 1, wherein the sense element 20,22,24 is coupled to the outer torque bearing member 14 ({Figs. 1a,1b}).

d. With respect to Claim 4, Kilmartin discloses the apparatus of claim 3, wherein the sense element 24 is magnetoelastic based or a strain gage based (col. 5 lines 39-51).

e. With respect to Claim 7, Kilmartin discloses the apparatus of claim 2, wherein an inner radius of the outer torque bearing member 14 is greater than an outer radius of the inner torque bearing member 10 ({Figs. 1a,1b}).

f. With respect to Claim 8, Kilmartin discloses the apparatus of claim 2, wherein the outer torque bearing member 14 is shaped as a circular, square, rectangular, or elliptical tubing ({Figs. 1a,1b}).

g. With respect to Claim 9, Kilmartin discloses the apparatus of claim 2, wherein the inner torque bearing member 10 is shaped as a circular, square, rectangular or elliptical tubing ({Figs. 1a,1b}).

- h. With respect to Claim 10, Kilmartin discloses the apparatus of claim 2, wherein the outer torque bearing member 14 is a rotary or non-rotary torque bearing member (col. 5 lines 1-5).
- i. With respect to Claim 11, Kilmartin discloses the apparatus of claim 2, wherein the inner torque bearing member 10 is a rotary or non-rotary torque bearing member (col. 4 line 67).
- j. With respect to Claim 12, Kilmartin discloses the apparatus of claim 2, wherein a length of the inner torque bearing member 10 is greater than a length of the outer torque bearing member 14 ({Figs. 1a,1b}).
- k. With respect to Claim 13, Kilmartin discloses the apparatus of claim 1, wherein the sense element 20,22,24 is coupled to the inner torque bearing member 14 ({Figs. 1a,1b}).
- l. With respect to Claim 15, Kilmartin discloses the apparatus of claim 1, wherein the stress is a torque (col. 4 line 67, col. 5 lines 1-5).
- m. With respect to Claim 31, Kilmartin discloses an apparatus comprising: structural members 10,14 generally concentric relative to each other such that a load on either causes a stress on the other (col. 4 line 67, col. 5 lines 1-5); and a sense element 24 coupled to at least one of the structural members 10,14 for generating a signal indicative the stress applied to the structural member 10,14 that is coupled thereto (col. 5 lines 47-51).

- n. With respect to Claim 32, Kilmartin discloses the apparatus of claim 31, wherein the structural members comprises an inner torque bearing member 10 inserted within an outer torque bearing member 14 (col. 3 lines 7-10).
- o. With respect to Claim 33, Kilmartin discloses the apparatus of claim 31, wherein the sense element 20,22,24 is coupled to the outer torque bearing member 14 ({Figs. 1a,1b}).
- p. With respect to Claim 34, Kilmartin discloses the apparatus of claim 31, wherein the sense element 24 is magnetoelastic based or a strain gage based (col. 5 lines 39-51).
- q. With respect to Claim 37, Kilmartin discloses the apparatus of claim 32, wherein an inner radius of the outer torque bearing member 14 is greater than an outer radius of the inner torque bearing member 10 ({Figs. 1a,1b}).
- r. With respect to Claim 38, Kilmartin discloses the apparatus of claim 32, wherein the outer torque bearing member 14 is shaped as a circular, square, rectangular, or elliptical tubing ({Figs. 1a,1b}).
- s. With respect to Claim 39, Kilmartin discloses the apparatus of claim 32, wherein the inner torque bearing member 10 is shaped as a circular, square, rectangular or elliptical tubing ({Figs. 1a,1b}).
- t. With respect to Claim 40, Kilmartin discloses the apparatus of claim 32, wherein the outer torque bearing member 14 is a rotary or non-rotary torque bearing member (col. 5 lines 1-5).

Art Unit: 2855

u. With respect to Claim 41, Kilmartin discloses the apparatus of claim 32, wherein the inner torque bearing member 10 is a rotary or non-rotary torque bearing member (col. 4 line 67).

v. With respect to Claim 42, Kilmartin discloses the apparatus of claim 32, wherein a length of the inner torque bearing member 10 is greater than a length of the outer torque bearing member 14 ({Figs. 1a,1b}).

w. With respect to Claim 44, Kilmartin discloses the apparatus of claim 31, wherein the sense element 20,22,24 is coupled to the inner torque bearing member 14 ({Figs. 1a,1b}).

x. With respect to Claim 46, Kilmartin discloses the apparatus of claim 31, wherein the stress is a torque (col. 4 line 67, col. 5 lines 1-5).

7. Claims 1,3,4,13,15,16,18,19,30,31,33,34,46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Lambson (6,269,702).

a. With respect to Claim 1, Lambson discloses an apparatus for single ended stress measurement, comprising: nested structural members 14,16 such that a load on either causes a stress on the other (col. 3 lines 23-25); and a sense element 40,42 coupled to at least one of the structural members 16 for generating a signal indicative the stress applied to the structural member 16 that is coupled thereto (col. 3 lines 35-38,48,49, col. 4 lines 38-42).

b. With respect to Claim 3, Lambson discloses the apparatus of claim 1, wherein the sense element 40,42 is coupled to the outer torque bearing member 16 (col. 3 lines 48,49).

c. With respect to Claim 4, Lambson discloses the apparatus of claim 3, wherein the sense element 40,42 is a magnetoelastic based or strain gage based (col. 4 lines 3,4 {Fig. 2B}).

d. With respect to Claim 13, Lambson discloses the apparatus of claim 1, wherein the sense element 40,42 is coupled to the inner torque bearing member 16 (col. 3 lines 48,49).

e. With respect to Claim 15, Lambson discloses the apparatus of claim 1, wherein the stress is a torque (col. 3 lines 64-67, col. 4 line 42).

f. With respect to Claim 16, Lambson discloses a method for performing a single ended stress measurement, the method comprising affixing a pair of generally concentric structural members 14,16 relative to each other at one end thereof (col. 3 lines 23-25); coupling a sense element 40,42 to at least one of the structural members 16 (col. 3 lines 48,49); applying a load to at least one of the structural members 16 distal the affixed end thereof (col. 3 lines 35-38); and measuring a signal 50 generated by the sense element 40,42, and correlating same to the applied load (col. 4 lines 38-42).

g. With respect to Claim 18, Lambson discloses the method of claim 16, wherein the sense element 40,42 is coupled to the outer torque bearing member 16 (col. 3 lines 48,49).

- h. With respect to Claim 19, Lambson discloses the method of claim 16, wherein the sense element 40,42 is a magnetoelastic based or strain gage based (col. 4 lines 3,4 {Fig. 2B}).
- i. With respect to Claim 30, Lambson discloses the method of claim 16, wherein the stress is a torque (col. 3 lines 64-67, col. 4 line 42).
- j. With respect to Claim 31, Lambson discloses an apparatus comprising: structural members 14,16 generally concentric relative to each other such that a load on either causes a stress on the other (col. 3 lines 23-25); and a sense element 40,42 coupled to at least one of the structural members 16 for generating a signal indicative the stress applied to the structural member 16 that is coupled thereto (col. 3 lines 35-38,48,49, col. 4 lines 38-42).
- k. With respect to Claim 33, Lambson discloses the apparatus of claim 31, wherein the sense element 40,42 is coupled to the outer torque bearing member 16 (col. 3 lines 48,49).
- l. With respect to Claim 34, Lambson discloses the apparatus of claim 31, wherein the sense element 40,42 is a magnetoelastic based or strain gage based (col. 4 lines 3,4 {Fig. 2B}).
- m. With respect to Claim 46, Lambson discloses the apparatus of claim 31, wherein the stress is a torque (col. 3 lines 64-67, col. 4 line 42).
- n. With respect to Claim 47, Lambson discloses the apparatus of claim 31, wherein the vehicle comprises a wheeled means 73 for transport (col. 5 lines 40,41 {Fig. 4}).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5,6,20,21,35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilmartin (5,889,215) or Lambson (6,269,702) in view of Cripe (6,698,299).

a. With respect to Claims 5,20 and 35, Kilmartin or Lambson disclosed the claimed invention except for a response detector in communication with the sense element. Cripe teaches magnetometer device having a response detector 96 in communication with sense element 28 (col. 8 lines 23-37 {Fig. 4}). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kilmartin or Lambson with the teachings of Cripe to include a response detector in communication with a sense element for the purpose of detecting the amplitude and phase of the even-order harmonics with respect to the excitation signal (see Cripe, col. 8 lines 23-37).

b. With respect to Claims 6,21 and 36, Cripe teaches a magnetometer ({Figs. 4-7}).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(6,439,066) (6,145,387) (4,780,671) (6,679,123) (6,318,188) (6,000,289)
(6,513,395) (5,907,105)

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alandra Ellington whose telephone number is (571) 272-2178. The examiner can normally be reached on Monday - Friday, 7:30am - 4:00pm.

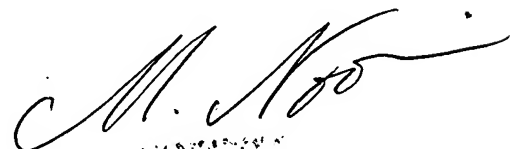
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2855



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